Financial Economics

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Course outline

The purpose of the course is to introduce the student to Finance as seen from the economist's point of view. In particular, it intends to expose in terms that are accessible to the undergraduate student the following topics:
(i) The theory of decision making with under uncertainty. In particular, the Expected Utility theory and the measures of risk aversion will be presented and evaluated critically.
(ii) The basic portfolio models: Portfolio Selection, The Capital Asset Pricing Model (CAPAM), and the Arbitrage Pricing Theory (APT) will be dealt with extensively. Students familiar with mathematical software packages will be asked to conduct simulations in one of these topics.
(iii) Equilibrium and arbitrage in financial markets. The concepts of market efficiency, equilibrium pricing, and arbitrage pricing of financial assets will be explained. Particular attention will be paid to the interrelation of arbitrage and equilibrium pricing..
(iv). Pricing of derivative securities. Options will be used as an example of evaluating derivatives. The binomial model and the Black and Scholes model of pricing options will be developed as an example of pricing through arbitrage.

Evaluation

There will be several problem sets, a mid-term exam and a final exam, and a term paper. The weights of the various components will be discussed in the class..

Books

S. Benninga, Financial Modeling , 2nd edition, MIT Press, 2001.
Copeland J. and F. Weston, Financial Theory and Corporate Policy, 3rd edition, Addison-Wesley, 1992.
J-P. Danthine and J.B. Donaldson, Intermediate Financial Theory, Prentice-Hal, 2002
S. Ross, An Elementary Introduction to Mathematical Finance, 2nd edition, Cambridge, 2003.

Introduction

Probability, Random Variables, and Present Value Analysis.
Reference
Ross, Ch. 1, 2, 4.

Investment Decisions under Certainty
Transforming Income between the Present and the Future through:
(a) Borrowing and Lending, (b) Production.
References

Class notes
Copeland and Weston, Ch.1, Ch.2.

Decision Making under Uncertainty
Chance Games and Decisions-The Expected Utility Theory – Risk Aversion – The Measure of Risk Aversion - The theory of Portfolio Selection (an Introduction)
References
Class notes
Machina, M 1983, "The Economic Theory of Individual behaviour towards Risk", Institute for Mathematical Studies in Social Sciences Technical Report No 433, Stanford University.
Copeland and Weston, Ch.5.
Danthine and Donaldson, Ch.2-4.

Portfolio Theory

Mean-Variance Analysis
Risk and Return as Objects of Choice
References
Bennigna, Ch.5
Danthine and Donaldson, Ch.5

The Capital Asset Pricing Model
The Efficient Portfolio Frontier-The Market Portfolio-Derivation of "Betas"-The Securities Market Line-Empirical Testes of the CAPM
References
Bennigna, Ch.6-9
Danthine and Donaldson, Ch. 6
Copeland and Weston, Ch.6-7
Ross, Ch.9.

The Arbitrage Pricing Theory (APT)
Pricing by Arbitrage
APT as an extension of the CAPM
References
Copeland and Weston, Ch.7.
Danthine and Donaldson Ch.12,
Class notes

Equilibrium vs. Arbitrage

State Preference Theory
State Variables-Description of Different Environments

The Arrow-Debreu World

States of Nature - Contingent Claims and Contingent Commodities
References.
Copeland and Weston, Ch.5, and its Appendices A, B, C.

Equilibrium and Arbitrage Pricing
State Prices
References
Class notes

Introduction to the Consumption Capital Asset Pricing Model
References
Danthine and Donaldson, Ch.7, 9 10.
Class notes

Pricing of Derivatives

Options
Call & Put Options-European and American Options-Payoff Patterns

The Pricing of Options
The Role of Arbitrage - Binomial Trees and the Pricing of Options – Volatility – Black and Scholes.
References
Bennigna, Ch.10, Ch.11, Ch.12, Ch.13.
Copelad and Weston, Ch.8.
Danthine and Donaldson Ch.7,8
Ross, Ch. 5, 6, 7, 8, 12, 13.
Class Notes